

Date: Wed, 8 Jun 94 04:30:38 PDT
From: Ham-Space Mailing List and Newsgroup <ham-space@ucsd.edu>
Errors-To: Ham-Space-Errors@UCSD.Edu
Reply-To: Ham-Space@UCSD.Edu
Precedence: Bulk
Subject: Ham-Space Digest V94 #149
To: Ham-Space

Ham-Space Digest Wed, 8 Jun 94 Volume 94 : Issue 149

Today's Topics:

 * SpaceNews 06-Jun-94 *
 K023 - what do the downlink messages mean?
 LUSAT-1 (LO-19): Actual status
 Quadrifilar helix ?

Send Replies or notes for publication to: <Ham-Space@UCSD.Edu>
Send subscription requests to: <Ham-Space-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Space Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-space".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 6 Jun 94 17:47:44 GMT
From: agate!howland.reston.ans.net!europa.eng.gtefsd.com!newsxfer.itd.umich.edu!
nntp.cs.ubc.ca!alberta!ve6mgs!usenet@ucbvax.berkeley.edu
Subject: * SpaceNews 06-Jun-94 *
To: ham-space@ucsd.edu

SB NEWS @ AMSAT \$SPC0606
* SpaceNews 06-Jun-94 *

BID: \$SPC0606

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SpaceNews
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MONDAY JUNE 6, 1994

SpaceNews originates at KD2BD in Wall Township, New Jersey, USA. It is published every week and is made available for unlimited distribution.

★ DOVE SPEAKS ★

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It has been said that good things come to those who wait, and this week it is a pleasure to report that DOVE-OSCAR-17 is uttering its first words! Congratulations to Jim White, WD0E, and the other spacecraft controllers for their fine effort in bringing this injured satellite back to life.

★ MIR INFORMATION ★

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Sven Grahn of Sollentuna, Sweden provided the following information regarding the frequencies and emissions used by the Mir space station.

Sven reports the signals on 166 MHz are PCM FM signals and the modulation index is so high that two peaks appear in the signal spectrum, one on each side of the carrier. The carrier is on 166.000 MHz creating a signal peak at 166.150 MHz and another peak at 165.850 MHz.

The signals from Soyuz and Progress on 922.75 MHz contain a carrier plus telemetry sidebands. The modulation type is unknown. Sometimes tones are frequency modulated on the carrier. These contain sixteen-bit words, which probably constitute a command verification link. There is a similar link from Soyuz and Progress on 926.07 MHz operating simultaneously with the 922.75 MHz link.

For Progress and Soyuz, the 922, 926 and 166 MHz signals are switched on simultaneously by ground command.

[Info via Sven Grahn]

★ UNAMSAT-1 NEWS ★

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The launch campaign for the UNAMSAT-1 MicroSat is currently underway with launch set for 15th June, but there is a possibility that it might be delayed about one week. The launch will be on a refurbished Soviet SS-18 ICBM designed to carry satellites. The final Keplerian elements of the intended orbit are not known, but the known parameters are as follows:

Orbital Inclination = 73 degrees
Altitude = 730 KM
Orbital Eccentricity = 0.00000000

The satellite will separate from the rocket with no spin. All transmitters will be silent at separation and for a period of at least 1 hour. The VHF receive antenna and the two halves of the canted dipole for 40.997 MHz will be collapsed and then they will be deployed 3 minutes after separation.

The following information was first published in mid-1992, but may have changed since:

As with the earlier MICROSATs, UNAMSAT-1 it has five modules, each about 20 cm on a side. Four of the five modules are updated clones of existing MicroSat hardware/software carrying Dual 70cm PSK transmitters; a computer and power system; a 5-channel 2M FSK receiver and running similar software to the other MICROSATs. The main differences from the earlier MicroSat configuration are that the computer will have 4 MB of RAM instead of 8 MB and UNAMSAT-1 will be equipped with Gallium Arsenide solar panels.

The innovative new addition is a brand new on-board experiment in the 5th "TSFR" ("This Space For Rent") module:

UNAMSAT-1's primary mission is to act as meteor sounder. It will contain a 40.097 MHz transmitter with 60 watts output during pulses from which can be varied from 1 to 10 msec in duration and with a pulse repetition rate of 1 to 10 seconds, as controlled by a computer subsystem. The meteor echoes will be detected on a receiver at the same frequency designed to detect the returned echo and measure its doppler shift. The use of the meteor sounder is to obtain research data on the full-sky spatial and velocity distribution of meteors, with the focus on a search for high-velocity meteors originating outside our solar system.

The 40 MHz frequency for this transmitter is in accordance with the ITU frequency allocations table for scientific research and both the 40 MHz and amateur frequencies have been licensed by Mexican authorities.

The meteor receiver is an SSB "zero-IF" design and the return echoes are digitized and stored in the normal computer's RAM. After each pulse, the spectrum of the received signal will be determined using the onboard computer as a DSP Fourier Transform spectrum analyzer. If a meteor echo is detected, the echo will be saved for later transmission as a special telemetry frame.

The 1-10 second repetition rate for the meteor transmitter will be adjusted depending on the state of charge of the batteries and other spacecraft power requirements, and also on the time domain requirements of the echoes.

When UNAMSAT-1 is not involved in meteor research, it can be turned into a standard PACSAT message store-and-forward satellite and data will be sent using standard amateur AX.25 packet but the actual frequencies haven't been

determined yet.

[Info via Richard, G3RWL @ GB7HSN.#32.GBR.EU]

* LUSAT-1 NEWS *

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The following packet frame was received from LUSAT-1 on 29-May-94 by KD2BD in New Jersey at 16:11 UTC:

LUSAT-1>AMARG [29-05-94 16:11:21] <UI>:

May 21.

OBC crashed on May 17 at +/- 2:45 utc, lat 45s, lon 43 w.
Only digipeater is available.

LU8DYF, LO-19 command station.

Raw telemetry should be directed to Noberto, LU8DYF either via packet radio at LU8DYF@LU8DYF.BA.ARG.SOAM, via the Internet at lu8dyf@asarin.org.ar, or via any active Pacsat by directing the message to LU8DYF. Special awards are available to those who submit telemetry reports.

* REPORT FROM HI8 *

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Bill Meara, N2CQR/HI8 in Santo Domingo in the Dominican Republic sent a FAX to let everyone know that there is a small but enthusiastic group of satellite operators in his country. Pericles, HI8P, a lifetime member of AMSAT, and others have recently been bit by the RS satellite bug. They also listen for DOVE, connect to Mir, and work the SAREX experiments when flown on the US Space Shuttles.

Bill reports that RS-10 and RS-12 are performing well, and that QSLs for ROBOT contacts are available through DF4XW. Bill uses an old Hallicrafters HT-37 transmitter and Drake 2-B receiver with dipole antennas to work RS-12 Mode K. His station is just another example of a low-cost, low-frills station that can be used to make satellite contacts.

* FO-20 NEWS *

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On 19-May-94, the FO-20 command station announced that a problem exists in FO-20's onboard computer system. The satellite's transponder will remain in the analog mode (JA) until further notice.

[Info via Kazu Sakamoto, JJ1WTK]

* THANKS! *

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Thanks to all those who sent messages of appreciation to SpaceNews,
especially:

N2CQR/HI8 N2OFM G3BGM KE4HSB VK4BY N0LBN

* FEEDBACK/INPUT WELCOMED *

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Mail to SpaceNews should be directed to the editor (John, KD2BD) via any
of the following paths:

FAX : 1-908-747-7107

PACKET : KD2BD @ N2KZH.NJ.USA.NA

INTERNET : kd2bd@ka2qhd.de.com -or- kd2bd@amsat.org

MAIL : John A. Magliacane, KD2BD
 Department of Engineering and Technology
 Advanced Technology Center
 Brookdale Community College
 Lincroft, New Jersey 07738
 U.S.A.

<<= SpaceNews: The first amateur newsletter read in space! -=>>

/EX

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John A. Magliacane, KD2BD * /\ /\ * Voice : 1-908-224-2948
Advanced Technology Center |/\ /\ /\ | Packet : KD2BD @ N2KZH.NJ.USA.NA
Brookdale Community College |/\ /\ /\ | Internet: kd2bd@ka2qhd.de.com
Lincroft, NJ 07738 * \/\ / * Morse : -. -.. ..--- -... -..

Date: 7 Jun 94 21:20:52 GMT

From: dog.ee.lbl.gov!ihnp4.ucsd.edu!swrinde!cs.utexas.edu!not-for-
mail@ucbvax.berkeley.edu

Subject: K023 - what do the downlink messages mean?

To: ham-space@ucsd.edu

The 9600 baud sats downlink a lot of info all the time. The meaning of
some of it is obvious and some is not. Does anyone have a list of
typical messages and what they are all about?

--

Bruce M. Marshall bmm1@freenet.fsu.edu voice 615 481 0990 fax 615 481 8039

Date: 3 Jun 94 19:44:00 GMT
From: news-mail-gateway@ucsd.edu
Subject: LUSAT-1 (LO-19): Actual status
To: ham-space@ucsd.edu

Official LUSAT-1 Status Report

Overseas stations: If you capture any LUSAT-1 telemetry and send it in raw-mode to the satellite control station, you'll receive a certificate for your collaboration. These telemetry reports can be sent either via packet radio to LU8DYF@LU8DYF.BA.ARG.SOAM and LU8DYF@ANY-ACTIVE-SATELLITE, or via Internet to: lu8dyf@asarin.org.ar

If you intend to use the satellite, please remember that the BBS is NOT LOADED and it will NOT be operational for the next 2 weeks (approx.).

The LUSAT-1 recovery team want to thanks all the stations that sent LUSAT-1 telemetry data in RAW format.

The overseas stations that are going to receive the Special Award are:

JN2LHU, OZ6BL, OZ7SAT, EA1BCU, EA2CLS, WH6I, W90DI, SM5BVF, ZS6BMN, JJ1WTK, LU1FYZ, LU2FCY, LU2JCI, LU1JBR, LU8ENU, LU6DYD and LU1DBC.

73's de Eduardo Sweet, LU7AKC (LUSAT-1 recovery team)

packet: lu7akc@lu7akc.#col.cf.arg.soam
e-mail: lu7akc@asarin.org.ar

Date: 7 Jun 94 21:11:38 GMT
From: sdd.hp.com!math.ohio-state.edu!cs.utexas.edu!not-for-mail@hplabs.hpl.hp.com
Subject: Quadrifilar helix ?
To: ham-space@ucsd.edu

I read Dave Guimont's article on quadrifilar helix antennas in the March/april Amsat journal. I would appreciate any info from anyone who has any additional info on these antennas. Specifically does anyone have an answer to these questions:

Which polarity is best for the 9600 FM sats?
Where can one get the copper hard line Dave refers to?

Can these antennas be purchased and from who?

I have the first addition of the Satellite Experimenters Handbook. Does the second edition have more info on these antennas?

Will the Q.H. receive below 20 degrees elevaation. I am using verticle colinear antennas with 6 to 9 dB gain in the horizontal plane. They pick up some data on any pass above about 5 degrees but perform very poorly on direct passes over about 40 degrees. Would anyone like to comment on weather an antenna pointing up (like the Q.H.)would copy more or less data if it can not see low elevation passes.

Thanks for any info!

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Bruce M. Marshall bmm1@freenet.fsu.edu voice 615 481 0990 fax 615 481 8039

End of Ham-Space Digest V94 #149
